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Report of the Meeting on Climate Change Related Statistics for Producers and Users, 8-9 October 2013

Note by the Secretariat

Addendum

Summary

This document presents the outcome of the Meeting on Climate Change Related Statistics for Producers and Users, which took place from 8 to 9 October 2013 in Geneva. The meeting reviewed a draft report with recommendations for improving climate change related statistics, drafted by a Task Force on climate change related statistics. The meeting was comprised of four sessions discussing: (a) greenhouse gas emission inventories and official statistics; (b) climate change related statistics; (c) statistical infrastructure; and (d) the way forward. The conclusions of the meeting will provide input to the final report of the Task Force, which will be presented to the Conference of European Statisticians in April 2014 for endorsement.

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I. Introduction

1. The Meeting on Climate Change Related Statistics for Producers and Users was held on 8-9 October in Geneva, Switzerland.

2. Participants from the following countries attended the meeting: Canada, China, Finland, France, Germany, Ireland, Italy, Luxembourg, Mexico, Netherlands, Norway, Poland, Qatar, Romania, Switzerland and United Kingdom. These participants represented national statistical offices (NSOs), ministries of environment, environmental agencies and research institutes of countries.

3. Representatives of the following international organisations attended the meeting: Directorate-General for Climate Action of the European Commission (DG CLIMA), Euro-Mediterranean Center on Climate Change, Eurostat, Intergovernmental Panel on Climate Change (IPCC), United Nations Framework Convention on Climate Change (UNFCCC), United Nations Industrial Development Organisation (UNIDO), World Bank, World Meteorological Organisation (WMO) and UNECE.

4. The meeting was chaired by Mr. R. Smith of Canada who presented the context of work of the Task Force on climate change related statistics. Mr. Smith also presented the plan for finalising the Task Force's report with recommendations towards improving the climate change related statistics collected by national statistical systems and enhancing their utility for the compilation of greenhouse gas inventories. The Task Force was set up by the Conference of European Statisticians (CES) in November 2011, and the final report is planned to be presented to the CES in April 2014 for endorsement.

II. First session – Greenhouse gas emission inventories and official statistics

5. The session was organised by Mr. B. Newson of Eurostat. It focused on sections 2.1-2.3, 2.5 and 4.1 of the Task Force's draft report which deal with the links between official statistics and greenhouse gas emission inventories. The session organiser introduced the following recommendations 1-3 of the report and some examples of how the recommendations could be implemented:

- NSOs must improve data and statistics required for greenhouse gas inventories;
- NSOs should be considered as official institutions in the national greenhouse gas inventory systems in all countries, and they should be proactive in reaching out to national GHG inventory compilers;
- The international statistical community should take an active role in contributing to the global GHG inventory system.

6. The discussant, Ms. H. Champion of the United Kingdom Department of Energy and Climate Change (DECC), briefly explained their greenhouse gas inventory process. Their greenhouse gas inventories are compiled by DECC who produces official statistics on energy and climate change. All of DECC's statistics are classified as National Statistics, reflecting the fact that they comply with the Code of Practise for Official Statistics and are authorised by the Chief Statistician for DECC, who has a direct reporting line to the UK's National Statistician – this system is common for many statistics in the UK. The emission estimates are compiled under the status of official statistics. The key benefits of this system include ensured independence and impartiality of the emissions reporting, quality assurance of the publication procedures, improved communication of the data and direct integration

with the strategy and target setting for the inventories. The following issues were raised as a response to the questions by the discussant:

A. How to ensure that national statistical systems are more aware of how their data are, or could be, used in inventories?

7. Increasing the awareness of statistics that already exist is important for avoiding duplication of work. As the coordinator of the national statistical system, NSOs should promote better awareness of how the data belonging to the statistical system are, or could be, used for greenhouse gas inventories. Official statistics should be the backbone of the inventories, and additional data collection should be carried out only when official statistics are not available.

8. Lack of communication can lead to problems in the national inventory system, for instance an NSO decided to discontinue the iron and steel statistics which took away a data source that covered about 10 per cent of emissions in the country. It could be helpful if National Inventory Systems set out a formal procedure to acquire data from the national statistical system for the inventories. This would ensure NSOs' awareness of the data needed by the inventory compiler.

9. Better communication could be achieved by creating a national working group consisting of inventory compilers and the organisations from the national statistical system that provide data for inventories. The working group could share information, review existing data and data collections and discuss related challenges. On European level, good results have been achieved by organising a joint session of already established working groups, e.g. a joint meeting to discuss energy statistics between DG CLIMA's working group on annual inventories and Eurostat's energy statistics working group, including the respective country representatives. Similar working groups or joint sessions could be used in other areas, such as agriculture, waste, etc.

10. A good starting point for improving NSOs' contribution to inventory compilation would be to draft, together with the inventory compilers, a list of national priorities and a roadmap on data development needs for inventories. NSOs could explore the statistical data available for inventory compilation and consider if their usefulness could be improved for inventory purposes. The report could be restructured to focus more on the needs of all user groups.

11. Better knowledge of inventory methodologies within the NSO could help improve the comparability and links between inventory data and official statistics. Relevant knowledge could be accumulated by studying the Common Reporting Format (CRF) tables, the IPCC methodology and guidelines, as well as the issues raised in the Inventory Review Reports regarding source data for the inventories.

12. Comparability problems could be overcome by (i) describing the differences between inventory data and official statistics, (ii) developing standardized tools for data comparison, such as correspondence tables, and (iii) explaining the differences by using reconciliation items or so called "difference components".

13. Efforts should be made to use the same source data for similar statistics where possible, especially for energy statistics, energy balances, environmental accounts and greenhouse gas inventories, as well as for other reporting protocols for example on air pollution.

B. Should national statistical offices be more involved in the national inventory systems?

14. Successful functioning of the national inventory system depends on the relationship between the NSO and the inventory compiler who should both be attentive towards each other's work. A clear distribution of responsibilities is important. Therefore, good practices in collaboration during the inventory process could be presented in the report.

15. NSOs could improve their contribution by sharing good practice on how NSOs can support the inventory systems. Regardless of whether the NSOs are formally part of the national inventory system, it is important that the statistical community be engaged in the work by providing and improving the source data.

16. The recommendations in the report should focus on how NSOs can assist in the inventory compilation in practice. NSOs can improve the compilation process and the quality of activity data. Improvements are needed especially on land use and forestry data. The quality of energy data is also essential for the inventories. NSOs could also help improve the timeliness of activity data. Producing early estimates of CO_2 based on monthly energy statistics should be highlighted as a good practice in the report.

17. NSOs could be involved in quality assurance of inventory data. Quality means different things for official statisticians, inventory compilers and data users. (i) For statisticians it refers to adherence to quality standards and a self-assessment of how the data are collected and measured. (ii) Inventory compilers, on the other hand, rely on scientific methods and external quality assurance processes done by a third party who is not involved in the process of inventory compilation, and who compares the inventory results with independent data sources. The Annex IV on quality frameworks should refer to the respective legislation for official statistics and inventories. (iii) Users often compare inventory data with other sources and would value better consistency among other things.

18. Overcoming confidentiality problems could sometimes be possible by involving NSOs in the inventory compilation. Confidentiality of respondents' data often prevents access to the lower aggregation levels of activity data, such as production of manufactured goods (PRODCOM) or the 4-digit level data by the International Standard Activity Classification (ISIC) that are needed for the inventories. Those who are not part of the national statistical system are not entitled to access confidential data, or the administrative data that NSOs have. This is why in some countries the part of inventory compilation that requires the use of confidential data could be done by NSOs. Similarly, in some cases the data submitted under the European Emissions Trading system is not accessible to NSOs.

19. NSOs could be involved in the inventory review process by providing experts to participate in the inventory review teams. Sometimes the review teams draw attention to statistically insignificant gaps in reporting.[1] Participation of NSOs' experts in the review teams could offer more insight into how official statistical data could be better used in the inventory, and for considering the relevance of each reporting category in the country.

[1] The upcoming revised guidelines for reporting inventories in the UNFCCC process will still require all emission categories to be reported regardless of their relevance. For those categories which are insignificant, a note "not estimated" can be used instead of providing the data. An emission should only be considered insignificant if the likely level of emissions is below 0.05 per cent of the national total GHG emissions, and does not exceed 500 kt CO2 eq. The total national aggregate of estimated emissions for all gases and categories considered insignificant shall remain below 0.1 per cent of the national total GHG emissions. The new guidelines will also allow countries to reject an obligation to report on a particular emissions category.

C. What roles and responsibilities should the UNECE and other international organisations have?

20. Climate change related statistics need to be developed at several levels: (i) Some data needs related to climate change are typically sub-national. (ii) Coordination, on the other hand, should be improved nationally among the organisations involved in measuring climate change related issues. (iii) Several layers exist also at the international level – regional, European Union and wider international level.

21. Most standards, classifications and methods of greenhouse gas inventories and official statistics are developed and agreed upon through international processes. The meeting agreed that better dialogue is needed between the international organisations working on climate issues, for instance for UNECE, UNFCCC, IPCC, WMO and others such as International Renewable Energy Agency and the International Institute for Applied Systems Analysis. Therefore, taking the climate change related issues into account in standards and classifications requires action at international level.

22. National statistical offices should be represented at the international level, for example through the CES and the UNECE Secretariat to achieve closer collaboration with international organisations active in climate issues.

23. Both the international statistical community and inventory compilers should be better informed about new priorities stemming from the climate negotiations. The negotiations not only have implications for inventories but also for international statistical development. Through closer cooperation with UNFCCC and IPCC, the CES could provide a forum for informing national statistical offices of the statistical requirements concerning inventories.

24. Harmonization of standards between official statistics and greenhouse gas inventories can be best addressed through formal UNFCCC process where countries are represented. Statisticians could comment on the inventory methodology through the national representatives of the relevant UNFCCC forums. It is more difficult to influence the IPCC methodology development work as it is performed by IPCC working groups consisting of independent experts and directed by a relatively small IPCC Secretariat. The new 2006 IPCC Guidelines will be adopted in November 2013. While getting acquainted with the new methodological guidelines, the statistical community will have time to figure out how to get involved in the possible future methodology development by IPCC and UNFCCC.

25. The roles and responsibilities of international organisations involved in measuring climate change related issues should be discussed. The Task Force should work with the international organisations to define what could be the role of NSOs in support of the international work on measuring climate change. The way in which the data and expertise of the statistical community could support the work of international organisations should be reviewed.

26. The international statistical community could have a role in quality assurance of inventories and sharing good practices of data provision and compilation. The European Code of Practice and the global framework set up by the Fundamental Principles form an institutional setting for compiling impartial statistical information, particularly useful for measuring climate change related issues.

27. The session organiser concluded that the meeting agrees with the recommendations of the report. The discussion provided practical ideas and clarifications that will be taken into account in the chapter dealing with inventories. The discussions highlighted the importance of communication between the statistical community, inventory compilers and

data users. The report should illustrate country practices in dealing with inventory data quality, confidentiality and consistency problems. Inventory Review Reports could improve NSOs' awareness of the related data requirements and quality issues. More should be done at the international level as most of the standards, classifications and methods are developed at that level.

III. Second session – Climate change related statistics

28. The second session was organised by Ms. J. Hass of Statistics Norway. It focused on sections 3.1-3.3, 3.5 and 4.2 of the Task Force's draft report. The session discussed climate change related statistics other than the data needed for greenhouse gas inventories. These statistics include data on the drivers of climate change (excluding greenhouse gases), and data on the consequences of climate change, such as on the impacts of climate change and the related vulnerabilities, efforts to mitigate these impacts and adapt to them. The session organiser introduced the following recommendations 4-6 of the report and some examples of how the recommendations could be implemented:

- NSOs must improve the contribution of official statistics to climate change analysis. One of the first steps can be to facilitate access to the existing information;
- The usefulness of the existing environmental, social and economic statistics for climate change analysis should be improved, for example by better structuring the existing information;
- NSOs should review the key data needs of climate policy makers and analysts in their country and consider development of new statistics.

29. The discussant, Mr. J. Mysiak of Fondazione Eni Enrico Mattei, Euro-Mediterranean Centre for Climate Change, noted the importance of the report in terms of promoting the involvement of NSOs for instance in the development of climate change risk and adaptation statistics. He underlined the need to prioritize the recommendations by identifying areas for possible quick gains, where responding to user needs could be done at low costs to NSOs and high benefits for users. The report should also consider the economic value of making the existing data more accessible and useful for climate policies. The following issues were raised as a response to the questions by the discussant:

A. To what extent is it possible to reuse existing data or redesign the data collection systems while maintaining continuity?

30. NSOs' responsibility is to promote the use of the existing data in society, for instance by informing stakeholders of the possibilities these data provide. If stakeholders do not have a clear idea of the existing data, duplicated data collection activities may be created unintentionally.

31. In some cases small adjustments to data collections may improve the value of the collected data for climate change analysis notably, and they could lead to better use of the limited resources. For instance, the Eurostat Urban Audit Survey provides valuable information through more than 50 environmental variables on European cities, but at the same time lacks essential information for example on water use.

32. Various modifications would be needed to make the currently available data useful for analysing small regions. Official statistics are often not detailed enough, and many statistics are compiled based on samples that do not allow making estimations for small areas. In some cases, relevant data could be sourced from administrative registers that typically cover the population better, but provide a limited number of variables.

B. What should be and what should not be part of the role of NSOs? For instance, should NSOs certify the quality of data produced by others?

33. The role of NSOs is to coordinate the development of climate change related statistics in the national statistical system and to improve the quality of data and to make the existing data that are relevant for climate change analysis more easily accessible. What exactly should these data include and how to make them more easily accessible needs to be discussed in more detail.

34. Creating a national expert group or forum for discussion with users of climate change related statistics and other stakeholders, e.g. the meteorological services and the scientific community, would help NSOs set national priorities, identify priority data needs and select the most relevant data they could offer. Cooperation is a necessity for developing good mechanisms for improving the quality of data and sharing the relevant data and meeting users' needs.

35. NSOs should lead the work for developing national portals of climate change related information. It would not be necessary to physically bring together all data, but to provide easier access to them. As statistics serve multiple purposes, an increasing number of dashboards exists and could be developed, but sufficient resources should be found for the work. Another question is how to select the data for the portal in a neutral and comprehensive way.

36. NSOs cannot certify the quality of non-official statistics produced outside the national statistical system. In the case where an NSO facilitates access to all data relevant for climate change, the NSO should direct users' questions to the producer of each dataset. At the same time, NSOs should promote improvements in the coherence and reliability of data produced by others. In some areas improvements may be difficult to achieve though; environmental data are particularly challenging to develop as they are scattered across organisations.

37. A clear approach for providing access to non-official statistics through portals together with official statistics needs to be developed. One option would be to have part of the portal for official statistics and another for the rest. Another option would be to indicate clearly the status of data (official/non-official) in the portal.

38. The statistical community should be involved in reviewing statistical standards from the viewpoint of climate change and improving the standardisation of climate change related data and metadata before a number of global portals are set up. Several global portals for climate information exist already, for example the Global Climate Observing System which focuses on essential climate variables (biophysical meteorological information), not on statistics related to climate change. The International Renewable Energy Agency and the International Energy Agency are developing a joint Global Renewable Energy Policies and Measures Database.

39. Improved mutual understanding could be achieved through establishing a regular international forum for discussions and sharing experience, and through developing common terminology among climate information networks and official statisticians. The various statistical terms, such as confidentiality, need to be explained in the report for better mutual understanding of each other's work.

C. Do NSOs have the capacity to cover the full scope of climate change related statistics and to connect the datasets related to climate change? Where are the low hanging fruits?

40. NSOs are not in the position to try to meet all users' data requirements related to climate change. Climate change relates to a broad range of issues and climate policies may need to respond to new and often unforeseen developments or to address complex cross-cutting issues, such as ensuring reduction of emissions while maintaining strong economic growth. Data needs differ across user groups and may sometimes be highly complex, e.g. among the scientific community.

41. It would be useful to assess data needs by user groups as illustrated in figure 3 of the report. NSOs should define what is both relevant and feasible by comparing data needs to the costs of responding to them. A distinction between the critical data needs and the data that are "nice to know" should be made.

42. The meeting agreed on the recommendation of the report that the work should (i) start from providing better access to the data that exist; (ii) then the existing data should be made more useful, for example by increasing geo-referencing; (iii) third step would be to develop new statistics to fill in gaps. The sequencing of work could be made clearer in the report and more suggestions for practical actions in each step be added.

43. In the beginning, for example, improvements could be achieved by: (i) demonstrating possible uses of the existing official statistical data with regard to climate change; (ii) considering the possibility to facilitate access to key data through the creation of national portals of climate change related information; (iii) avoiding duplication of data collection through better collaboration with data producers and researchers; and (iv) reviewing existing data collections to identify where some changes could be done for the benefit of climate change analysis.

44. NSOs should facilitate the use of multiple datasets and improve the possibilities for others to access official statistical data in a format that allows linking it with other data. Different official statistical datasets should be made more compatible and inter-linkable. As the coordinator of the statistical systems, NSOs are also in a position to promote better coherence of data among data producers. The report should consider how far NSOs should go in this role.

45. It would be useful to define more precisely the priority areas for further work, although national priorities often depend on the ways in which climate change manifests itself in the country or region in question. National Communications and Biennial Update Reports to UNFCCC could help define these priorities. The data requirements of these reports will stay stable for several years and can help determine the key socio-economic statistics that are linked to climate change.

46. Two types of data are typically needed for monitoring climate change related issues: data describing the slow onset developments and data on extreme weather events.

- The slow onset developments require long-term monitoring with a set of regularly produced time series to develop baselines and track change rates. For this purpose, the national communications require data on socio-economic developments, national circumstances, impact of policies and measures on emissions, basic data used for emission projections, data on vulnerability, financial resources and assistance, transfer of technology, education, training and public awareness.
- NSOs should define together with national meteorological services what kind of statistics related to extreme events could be found from official statistics.

Monitoring the consequences of extreme events and performing risk assessments require tailored data e.g. on land use, land take and households in the area.

47. Data needs can be defined also by reviewing questions that climate policies are tackling. These questions include: Do climate policies lead to increased economic growth and creation of greener jobs? Why did emissions increase or decrease? Who is emitting and how consumption contributes to emissions? Which industries are among the most energy or carbon intensive? Which industries rely most on renewable energy? Energy, economic and labour statistics and for example heating degree days are needed to answer these questions. For risk assessments geographical data on population density, types of land-use and natural conditions are needed.

48. The session organiser noted the agreement on the recommendations of the report. The recommendations could be further sequenced to suggest concrete intermediate steps and list the main statistical domains concerned. The report will benefit from the many practical suggestions presented at the meeting, and could emphasise strategic improvement needs, such as adding the geographical dimension to socio-economic data and improving awareness of the existing official statistical data that are relevant for analysing climate change. In general, better communication is a key to improving climate change related statistics. This could be done through a national forum with users and stakeholders. At the international level, a call for partnerships was made to join forces for the development of more comprehensive information service for climate change analysis and monitoring.

IV. Third session – Statistical infrastructure

49. The third session was organised by Mr. L. Kolttola of Statistics Finland. The session focused on sections 2.4, 3.4 and 4.3 of the Task Force's draft report. The session organiser presented the challenges posed by climate change related statistics and greenhouse gas inventories to the statistical infrastructure. The session organiser introduced the following main recommendations 7-9 of the report and some examples of how the recommendations could be implemented:

(a) NSOs should review classification systems, registers, definitions and statistical frameworks to see that the needs related to climate change analysis are appropriately addressed;

(b) Statisticians will gradually require new kinds of expertise and ability to adopt new methodologies for producing climate change related statistics;

(c) In the longer run, organisational changes may be needed in NSOs to support the production of climate change related statistics that cut across the statistical system.

50. The discussant, Ms. C. Cahill of Statistics Canada, noted that infrastructure issues are interrelated and therefore the statistical production process should be reviewed as a whole, including questions such as "do we have the sampling frames that include climate issues?", "do we have the methodologies and production resources to produce information at the desired level of detail?", etc. The report could consider how NSOs can cope with emerging analytical needs that cannot be predetermined. As researchers are more interested in finding answers than accessing microdata, NSOs should invest in having sufficient capacity to guide researchers. The report could also provide some examples to explain what is meant by e.g. modernising statistical production. The following issues were raised as a response to the questions by the discussant:

A. What specific infrastructure issues should be first reviewed with a climate change "lens"?

51. It may be difficult to determine the exact areas where statistical production should be reviewed before a key set of climate change related statistics has been defined, and before NSOs have started to implement the set by deriving the required data. At that point NSOs may see more clearly where changes in data collections and production systems are needed.

52. The infrastructure behind inventory compilation is quite advanced, well monitored and regulated. There are, however, challenges due to the processes for ensuring confidentiality of NSOs' data. Protection of confidential data is regulated by statistical laws in most countries, and is an important prerequisite for the production of reliable statistics. Confidentiality rules are not easily changed and they may prevent the provision of detailed data for those operating under different legislation, such as inventory compilers and other producers of climate change related information. Furthermore, the need to use climate change data for regulatory purposes makes it necessary to collect additional data since data collected in the national statistical system can only be used for statistical purposes.

53. When there is an opportunity to revise statistical legislation the viewpoint of measuring climate change should be taken into account. In several countries the NSO will not be able to obtain any resources for developing climate change related statistics without an explicit legal mandate. Therefore, consideration should be given to the explicit inclusion of environmental issues, and thus climate change, in statistical laws. The new law regulating the production of climate change related statistics in Mexico would be an interesting case study for the report.

54. Regardless the different ways of organising the national statistical systems, NSOs' coordination task should extend to environment statistics. In many UNECE countries with developing statistical systems, the NSO does not yet have the mandate to be involved in environment or climate change related statistics which hampers efforts towards harmonizing these statistics and streamlining the statistical work.

55. The report should consider which classifications should be reviewed and how. The relevant classifications include for example classifications on education (ISCED), employment (ICSE), industry (ISIC), trade (SITC) and products (CPC). Classifications should be reviewed from the climate perspective during normal revisions process by dedicating a specific group to assessing how the classification supports measuring climate change related issues.

56. If classifications would allow for climate change related issues to be identified, NSOs could extract the relevant statistical data from existing databases. Ideally classifications would allow extracting climate relevant data e.g. on climate education, climate change research, engineering jobs related to solar panels or other green jobs, low-carbon industries, green technologies, biotechnology products, international trade flows of climate change related products and services, services on adaptation and mitigation, other environmental and climate services. It is, however, possible that the current setup of classifications would not work for measuring a crosscutting issue like climate change, and that it would require adding another dimension or layer to the existing classifications.

57. The recommendation on new expertise and better understanding of natural sciences should focus more on getting the required expertise through partnering and collaboration with the relevant agencies and experts. Some of the areas of greenhouse gas inventories, for example land use, require special expertise that would not be efficient for NSOs to acquire.

58. It is important that NSOs would nominate a contact person for climate change related statistics. This person would maintain contacts with inventory compilers and know their data requirements. The report could recommend options for NSOs regarding the location of such a contact point in the organisation, such as the unit that compiles environmental-economic accounts, especially if the air emission accounts are compiled there. The second option could be the unit for environmental statistics, and third the energy statistics unit. The organisation of national statistical systems differs across countries, so the relevant location may also vary.

B. Do we need guidelines on how to leverage or present SEEA accounts to help interpret national greenhouse gas inventories?

59. The report should give more specific recommendations on how to make the existing statistics more useful or relevant for analysing climate change related phenomena, e.g. how to describe climate change in connection with economic issues through the National Accounting Matrix with Environmental Accounts (NAMEA), how to assess employment data from climate change point of view and how to make use of the SEEA central framework for climate change analysis.

60. NSOs could help increase the analytical usefulness of greenhouse gas inventories by providing some contextual data e.g. by using energy statistics, providing a breakdown by industries or developing accounts similar to the air emission accounts for other sectors. For example, Statistics Canada recasts the Canadian official GHG emissions data following the accounting guidelines for physical flow accounts as described in the SEEA to provide users with a tool better suited to economic analysis. They also explain the differences of the SEEA concepts and the inventory concepts.

61. SEEA could be an answer for improved linking of environmental and economic data, and could offer increased analytical value in climate change issues. Expanding SEEA gradually towards measurement of climate change related issues would be an important strategic direction for NSOs' work.

C. Should there be further guidance for NSOs in development of geographical information programs?

62. Geo-referencing is a precondition for compiling small area statistics. Despite several success stories in the use of geo-referencing for official statistics, NSOs often have a limited capacity to increase the amount of geo-reference data and to ensure the quality. The report should recommend some good practices of NSOs in geo-referencing.

63. It is important to consider what the purpose of geo-referencing is. NSOs need to be careful with geo-referencing to ensure the quality of geo-referenced data. There may be problems in allocating variables geographically, for example between enterprises' headquarters and their local units. Another issue is where to allocate pollution originating from a certain factory: to the location of the factory or to the area where the pollution spreads.

64. Geo-referencing the emission or pollution sources is not an issue in Europe, where the Emissions Trading System provides information about the polluters. Furthermore, the UNECE Protocol on Pollutant Release and Transfer Registers (PRTR) provides publicly available geo-referenced emissions data with information on industrial pollutants, including greenhouse gas emissions. Several countries already provide their data through this service.

65. The report should be more specific about which statistical domains should be geo-referenced. More work is needed in particular to provide socio-economic data with a geo-reference. Ability to link geo-referenced emissions data with economic statistics, such as national accounts variables, would increase the analytical value of data.

66. The participants identified two layers of data that should be geo-referenced for linking with climate information: bio-physical[2] and socio-economic[3] data. Linking these with climate information could enable, for example, the analysis of green jobs, green economy, low-carbon industries, cost and price fluctuations as a consequence of climate events, sustainability of energy and resource use, impacts on population, agricultural productivity and changes in tourism flows, the vulnerability of regions to the effects of climate change as well as analysing the possible impacts of adaptation and mitigation activities.

- The relevant socio-economic data include e.g.: drivers of climate change (production, consumption), economy (gross value added, output by industries, costs, prices), employment, population (density, household structures, health, migration, urbanisation), transport, infrastructure networks and tourism, taxation and subsidies, financial support, innovation and technology diffusion.
- The relevant biophysical data include e.g.: soil (land-use, vegetation, droughts, floods, soil quality), use of natural resources (water consumption, energy use and sources), waste generation, agriculture (crop production), extreme weather events (type, intensity, magnitude) and environmental protection.

67. The session organiser concluded by noting that the meeting participants agreed on the recommendations on infrastructure, but that the report should provide some more specific examples and priorities. A section on the SEEA central framework will be added to the report including practical examples of its usefulness. Legislation issues discussed in the report should be revisited, especially to include the need of a clearer mandate for NSOs to coordinate the work on environmental statistics. Clarity about the responsibilities of the agencies involved in measuring climate change related issues is also an important issue to cover. The meeting participants considered it useful to deal separately with the infrastructure challenges of inventories and other climate change related statistics. Some of the current initiatives, such as the PRTR and ILO work on green jobs need to be better reflected in the report.

V. Closing session – the way forward

68. The closing session was organised by Mr. R. Smith of Canada. The session discussed the way forward in developing climate change related statistics. It considered how to progress in climate change related statistics both nationally and internationally and what should be the next steps in finalising the report of the Task Force.

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[2] Bio-physical data refers for instance to: soil (land-use, vegetation, droughts, floods, soil quality), use of natural resources (water consumption, energy use and sources), waste generation, agriculture (crop production), extreme weather events (type, intensity, magnitude) and environmental protection

[3] Socio-economic data could include for instance: drivers of climate change (production, consumption), economy (gross value added, output by industries, costs and prices), employment, population (density, household structures, health, migration, urbanisation), transport, infrastructure networks and tourism, taxation and subsidies, financial support, innovation and technology diffusion.

A. Further work on climate change related statistics

69. The key conclusion from the meeting was the need for close collaboration to define the way forward in a coordinated effort. The meeting participants emphasized the need to keep the momentum for improving the contribution of official statistics to climate change analysis and monitoring.

70. The meeting pointed out that countries need to gain experience in implementing the initial set of recommendations before launching further methodological work. Countries should be brought together to share ideas and good practices and to discuss areas for collaboration among the international statistical community, greenhouse gas inventory compilers and the relevant international organisations. Therefore, the meeting concluded that establishing a Forum for discussions among the producers and users of climate change related statistics, and with the participation of IPCC, UNFCCC and WMO would be the logical next step. The work of the Forum would include the following:

(a) Sharing development ideas and experience, as well as good practices in climate change related statistics;

(b) Discussing collaboration, roles and division of responsibilities among the statistical community, greenhouse gas inventory compilers and the relevant international organisations;

(c) Discussing the priority data needs in climate change related statistics to enable selection of a key set of climate change related statistics;

(d) Discussing concepts and measurement frameworks to be developed for the key climate change related statistics;

(e) Identifying areas where practical methodological guidance would need to be developed for NSOs' work.

71. The Forum should be country driven and provide a channel for regular collaboration among those working with climate change related statistics. It would help achieve a mutual understanding of each other's work and find a way to improving climate information services in coordination among the groups that are currently working as separate streams. The Forum could identify specific areas of climate change related statistics that require further methodological work. These could be addressed by setting up a dedicated task force to help countries progress with the related methodological work.

72. The meeting discussed how to support those who want to move forward in the implementation of the recommendations. The participants agreed that a small Steering Group, including 6-8 countries and partners, would be needed to provide guidance to the process. The Task Force will prepare a concrete proposal on the format of further work for consultation among the meeting participants before submission to the CES and its Bureau. Thereafter, the national statistical offices of UNECE countries and international statistical organisations active in the UNECE region will decide on the further work.

73. The chair thanked the meeting participants for their active contributions to the meeting, and noted the need to continue the dialogue among the international statistical community, UNFCCC, IPCC, WMO and other relevant international organisations. They should define together how NSOs could effectively engage in the inventory process through the existing mechanisms. The international organisations agreed to take part in the work of the Forum and offered their support for defining the possible role of national statistical offices from their point of view. They underlined the importance of extending the work to countries that are at early stages of developing their inventory system, and also to countries beyond the UNECE region.

B. Finalising the report and the recommendations

74. The meeting agreed on the Task Force's recommendations and considered them comprehensive. The participants noted the usefulness of some of the examples presented in the report. Several countries offered to provide additional case studies. The meeting provided a number of comments on how to make the recommendations more implementable and how to sequence the steps to be taken.

75. The recommendations should emphasize NSOs' role as the coordinators of the national statistical systems, but at the same time look beyond the statistical system to include the key players involved in measuring climate change related issues. The statistical terminology used in the report needs to be explained to those outside the international statistical community (e.g. by providing a glossary as part of the report).

76. More thinking is needed on what are the key user needs for NSOs to respond to. Climate change related statistics do challenge NSOs' infrastructure and it may take a long time to notably improve the current contribution of official statisticians to climate debate. There are also legislative challenges that should be further elaborated in the report.

77. The recommendations of the report were modified to reflect the discussions at the meeting and were consulted with the CES Bureau at its meeting on 28-29 January 2014. The report was then circulated for electronic consultation to all CES member countries and organisations, and to all those countries and organisations that were represented in one of the Meetings on Climate Change Related Statistics for Producers and Users on 19-20 November 2012 and 8-9 October 2013. The final recommendations will be presented to the Conference of European Statisticians in April 2014 for endorsement.